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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,195	09/25/2003	Seung-Kee Yang	5000-1-422	7207

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EXAMINER
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JACKSON JR, JEROME

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/671,195	Applicant(s) YANG ET AL.	
	Examiner Jerome Jackson Jr.	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 8 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

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Reference numerals 141 and 142 are not properly described in the specification and figures.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 is rejected as light does not have an energy bandgap, it merely has an energy.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,2,9-12 and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Spaeth et al '223.

Spaeth shows an optical apparatus comprising a vertical photodetector with active zone 2, an optical substrate or "bench" 6 including a first grooved surface 4 from which light is refracted and a second groove 4 from which the same light is reflected substantially vertical to the active zone 2. Claim 1 is anticipated. Claim 2 is anticipated

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as substrate 6 is a semiconductor and anticipates the final structure of the claim regardless of the process used to form it. Patentability of a product by process claim is determined by the final product, regardless of how actually made, *In re Hirao* 190 USPQ 15 at 17 (footnote 3). See also *In re Brown* 173 USPQ 685; *In re Luck* 177 USPQ 523; *In re Fessman* 180 USPQ 324; *In re Avery* 186 USPQ 161; *In re Wertheim* 191 USPQ 90; and *In re Morosi* 218 USPQ 289, all of which make it clear that it is patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

Claim 9 is rejected as Spaeth teaches an antireflection coating in column 3-column 4. Claim 10 is also rejected as the process used does not structurally distinguish the final product over Spaeth. Claims 11 and 12 are rejected as Spaeth teaches a silver metal reflection layer 5. Claim 14 is rejected as the light signal in Spaeth may have a larger energy than the bandgap of the semiconductor. This functional language does not structurally distinguish the claim over Spaeth. Claim 15 is rejected as Spaeth shows a light source emitting light rays 10, a substrate 11, a photo-absorption layer 2, and an optical bench 6. Claims 16-18 are also rejected as above. Claim 19 is rejected as the process of forming the light source does not structurally distinguish the claim over the applied art. Claim 20 is rejected as the substrate 11 of Spaeth is silicon (column 3 lines 44-45).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7,9-12,14-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Spaeth above.

Spaeth teaches a n-type semiconductor substrate. It clearly would have been obvious to have practiced a group IV, III-V, or II-VI semiconductor as they are common semiconductors in the art. Claims 3 and 4 are obvious. Claims 5 and 6 are obvious as figure 1 shows a top surface photodetector and figure 2 shows a bottom surface photodetector. Claim 7 is rejected as one of ordinary skill would adjust the angle of the grooves in Spaeth to maximize detection and 50-60 degrees would have been ordinary in a device as Spaeth.

Claims 1-7,9-12,14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spaeth in view of Nakanishi '772.

In regard to the angle of reflection, note Nakanishi teaches and suggests a reflection angle between 50-60 degrees in a silicon groove. It would have been obvious to have practiced similar angles in Spaeth for proper reflection.

Claims 8 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Kato '097 is relevant art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571 272 1730. The examiner can normally be reached on t-th 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571 272 1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jj



JEROME JACKSON  
PRIMARY EXAMINER